

What is Claimed is:

- [c1] A field effect transistor comprising
a conduction channel of sub-lithographic width,
source and drain regions having silicide sidewalls on a surface thereof, and
polysilicon gate regions on opposing sides of said conduction channel, said polysilicon
having silicide sidewalls formed thereon and recessed from said source and drain regions.
- [c2] A field effect transistor as recited in claim 1, wherein said silicide sidewalls are in the form
of a liner.
- [c3] A field effect transistor as recited in claim 1, wherein said polysilicon regions are connected
by a connector.
- [c4] A field effect transistor as recited in claim 3, wherein said connector is a damascene
connector.
- [c5] A field effect transistor as recited in claim 4, wherein said damascene conductor is formed
in a trench in at least one of an isolation structure or a pad material extending over an edge
of said polysilicon gate regions.
- [c6] A field effect transistor as recited in claim 1, wherein said silicide sidewalls are connected
by a connector.
- [c7] A field effect resistor as recited in claim 6, wherein said connector is a Damascene
connector.
- [c8] A field effect transistor as recited in claim 7, wherein said damascene conductor is formed
in a trench in at least one of an isolation structure or a pad material extending over an edge
of said polysilicon gate regions.
- [c9] A method of forming a field effect transistor including steps of
depositing regions of pad nitride on a silicon layer,
etching said silicon layer to undercut said pad nitride to form a conduction channel
between a source region and a drain region,
depositing polysilicon where said silicon has been etched,
etching through said polysilicon,

depositing silicide on remaining polysilicon and silicon, and
removing said silicide and polysilicon from sides of said conduction channel near said
source and drain regions.

- [c10] A method as recited in claim 9, wherein said steps of depositing said silicide and removing said silicide define and active area of said transistor.
- [c11] A method as recited in claim 10, wherein said step of depositing silicide includes the further step of
depositing a disposable hard mask to define said active area of said transistor.
- [c12] A method as recited in claim 11, wherein said disposable hard mask is borosilicate glass.
- [c13] A method as recited in claim 11, wherein said disposable hard mask is a doped glass.
- [c14] A method as recited in claim 11, wherein said disposable hard mask is an arsenic doped glass.
- [c15] A method as recited in claim 11, wherein said disposable hard mask is a ozone TEOS.
- [c16] A method as recited in claim 11, including the further steps of
stripping said disposable hard mask,
depositing a conformal layer of polysilicon and silicide,
applying a further mask, and
etching silicide and polysilicon in accordance with said further mask.
- [c17] A method as recited in claim 16 wherein said silicide of said conformal layer are silicides of tungsten, cobalt or titanium.